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# Using Electronic Medias for Science Mathematic and English in School under Office of the Basic Education Commission, Thailand

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**Abstract**

This study aims to increase the learning ability of students under the jurisdiction of the Office of The Basic Education Commission (Ministry of Education) through electronic english media. The media are used in science, mathematics and english classes in order to prepare the students for the ASEAN Community. The media can also benefit the students' communities in the long run. The comparison of the achievement test results before and after the use of media was made.It was found that the students' learning ability in the three subjects after the use of media increased by 27.67% and according to a questionnaire that assessed the satisfaction of 60 school administrators, 90 teachers and 3,600 students towards the media used, the administrators' satisfaction was high (the mean was 4.45 and the standard deviation was 0.55), the teachers' was also high (the mean was 4.30 and the standard deviation was 0.73) and the students' was high as well (the mean was 4.93 and the standard deviation was 0.82). To evaluate users' satisfaction, questionnaires based on Technology Acceptance Model were performed to gather data from 3,750 users. The result reveals that users (the mean was of 4.30 and the standard deviation was 0.52) were satisfied with the electric media. It can be concluded that the electronic media used in science, mathematics and english classes served as effective teaching aids.



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*Keywords:* Electronic Medias; Training; Student;

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## 1. Introduction

With the advent of recent technology, we have to be prepared for changes caused by technology; as a result, learning management is essential to improve community members mentally, intellectually, ethically and culturally so that they can lead a decent life. The 1997 Constitution states that education is an essential tool for developing an individual; therefore, everyone should have access to education. Every party in society has to be involved in managing the country's education and academic freedom should be guaranteed offering choices for both teachers and students. This will encourage teachers to explore and experiment new methods of teaching, which in turn will improve the quality of education (Ministry of Education, 2013).

Since science, mathematics and English are fundamental tools to learning other subjects, the Office of The Basic Education Commission stresses the improvement of teaching and learning. However, a lack of teachers teaching certain subjects has led to the introduction of e-Learning.

E-Learning can promote efficient teaching using computer-based learning, web-based learning and virtual classrooms. Students can learn through the Internet, intranet, extranet, satellite broadcast and interactive TV.

The Office of The Basic Education Commission in conjunction with Suan Sunundha Rajabhat University has introduced e-Learning in science, mathematics and English classes at primary and secondary schools under its jurisdiction to develop the students' ability in learning those three subjects.

## 2. Related Work and Studies

### *2.1. The 2008 Basic Education Core Curriculum*

The Ministry of Education issued the 2001 Basic Education Curriculum as the national core curriculum aiming to improve the quality of education so that learners are able to be good citizens with a good quality of life and the ability to compete in the global arena (Ministry of Education, 2013).

Six years later, this curriculum's strengths were identifiable. It facilitated the decentralization of educational authority, enabling local communities and educational institutions to participate and make significant contributions to the preparation of curriculum that met their real needs. The concepts and principles promoting learners' holistic development were quite apparent. However, some principles in the curriculum posed problems because they did not reflect the learning standards.

The Office of The Basic Education Commission, consequently, issued the 2008 Basic Education Core Curriculum so that it could be applied more properly within the educational service area and the schools, and correlates with the learning standards (Ministry of Education, 2013).

### *2.2. e-Learning*

The term refers to a teaching method integrating the content (still pictures) with moving pictures, videos and sounds and presenting them through web technology and course management systems so that teachers and students can communicate through e-mail or web board. Students can also communicate with their classmates through those channels (Siddiqui, Khanlid & Zubairi, Junaid, 2000; Mehlenbacher, Brad, et al. 2000; Trajkovic, Vladimir, et al. 2000).

## 3. Research Methodology

### *3.1. Analysis of learning standards and indicators based on the 2008 Basic Education Core Curriculum*

The related learning standards and indicators for science, mathematics and English for primary level 6 and secondary level 3 as stipulated in the curriculum were analyzed.

### *3.2. Data collection*

The data were collected from the questionnaire and the pre-tests and post-tests as follows:

- The letters from Suan Sunandha Rajabhat University, asking for cooperation in responding to the questionnaire eliciting information on the satisfaction with the use of e-Learning in teaching such subjects were sent to 30 schools under the jurisdiction of the Office of The Basic Education Commission.
- The total number of 3,750 questionnaires sent to the subjects on line could be divided into forty students per one subject, totaling 3,600 questionnaires (the respondents could be any student), one teacher per one subject, totaling 90 questionnaires and Two school administrators per one school, totaling 60 questionnaires.
- The questionnaires were collected.
- The questionnaires were examined to determine whether they were completed.
- The data from the questionnaires were itemized so that they could be easily analyzed statistically.
- The results of the pre-tests and post-tests were collected. (The tests were done through e-mail.)

### *3.3. Data analysis*

The following are the statistics used in analyzing the data:

- Descriptive statistics – frequency and percentage – were used to analyze the general information of the respondents.
- Mean and Standard Deviation were used to analyze the satisfaction of the respondents with the use of e-Learning.
- One way ANOVA was used to compare the differences of more than sets of data and LSD was used to test the differences of the mean of more than groups of subjects.
- Content analysis and frequency were used to analyze the comments and suggestions on the use of e-Learning.

## 4. Operational Results

### *4.1. Results of the use of e-Learning*

The e-Learning programs for science, mathematics and English are multimedia English programs aiming to improve teaching and learning. The programs are equipped with high-definition videos and other components that appeal to the students. The contents are also clear and easy to understand as well as enjoyable. More than 75% of schools in Singapore, as well as schools in other countries, have been using these programs.

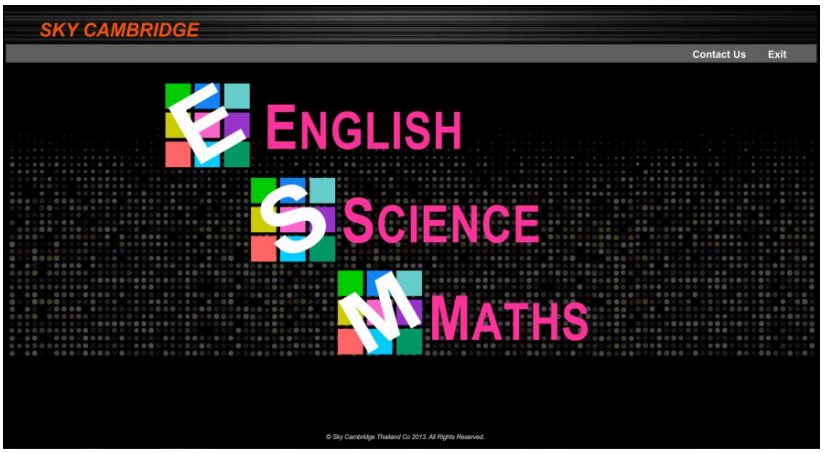


Fig. 1. The first page of the programs

- The first page contains the subjects taught. Learners can either listen to or read the explanations of the learning materials in the right-hand column. They can also change the English scripts into to Thai scripts by pressing 'Translation' as shown in Figure 2.

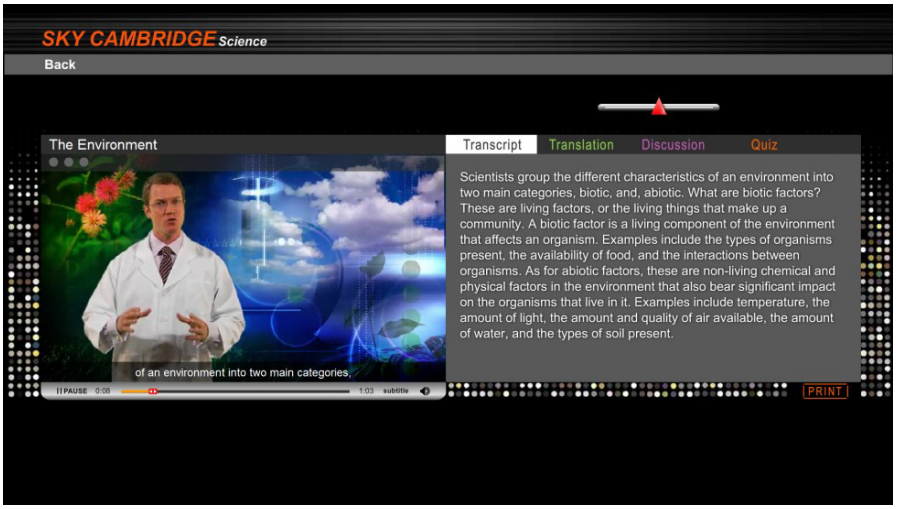


Fig. 2. Example of teaching material

- There is a quiz at the end of each lesson. Learners have to press 'Quiz' as shown in Figure 3.

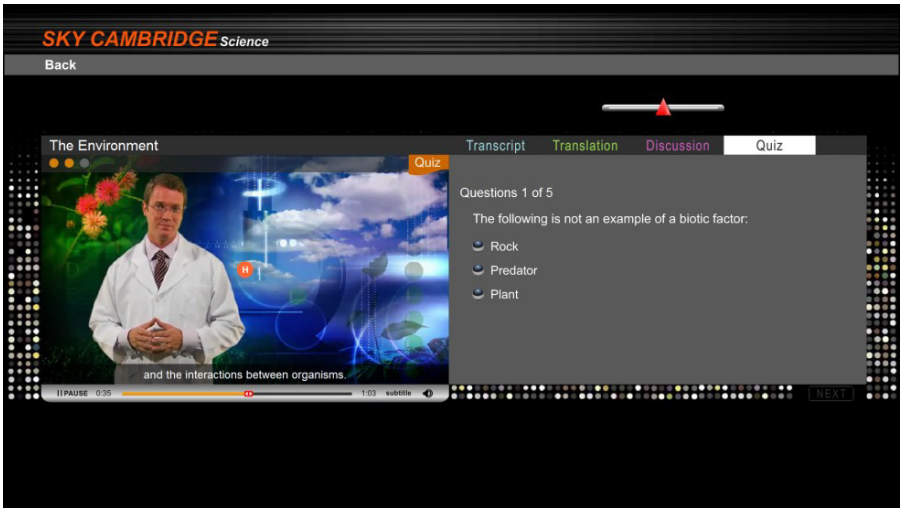


Fig. 3. Example of a quiz

### *4.2. Results of using e-Learning to assist teaching and learning*

Primary level 6 and secondary level 3 students in 30 schools were asked to take tests before and after they study science, mathematics and English through e-Learning programs. The comparison of the results of the pre-tests and the post-tests is shown in Table 1.

Table 1. Comparison of average scores of pre-tests and post-tests of science, mathematics and English

| Subject | Number | Average scores of pre-tests | Average scores of post-tests | Comparison of results |
|---|---|---|---|---|
| And an entry | 1,200 | 45% | 75% | increase by 30% |
| And another entry | 1,200 | 58% | 89% | increase by 31% |
| And another entry | 1,200 | 55% | 77% | increase by 22% |

It can be seen that these programs can improve students' learning achievement in mathematics most (31%), followed by science (30%) and English (22%). It can, therefore, be concluded that the e-Learning programs can assist the students' learning ability in the three subjects.

*4.3. Results of satisfaction*

- Results of satisfaction with the use of e-Learning to assist teaching and learning.

The reliability test was applied to the questionnaire used to elicit the satisfaction of school administrators, teachers and students with the use of e-Learning to assist teaching and learning before it was distributed to those involved. The results are shown in Table 2.

Table 2. Results of satisfaction of school administrators, teachers and students with the use of e-Learning to assist teaching and learning of science, mathematics and English

| Assessor | Mean | S.D. | Result |
|---|---|---|---|
| School administrator | 4.45 | 0.55 | high |
| Teacher | 4.30 | 0.73 | high |
| Student | 4.39 | 0.82 | high |
| Result | 4.38 | 0.70 | high |

According to Table 2, school administrators were satisfied with the e-Learning programs most (Mean = 4.45 and S.D. = 0.55), followed by students (Mean = 4.39 and S.D. = 0.82) and teachers (Mean = 4.30 and S.D. = 0.73). It can be concluded that in general the level of satisfaction of the three groups was high.

- Results of satisfaction and acceptance with the use of e-Learning to assist teaching and learning

Technology acceptance model was created to the questionnaire used to elicit the satisfaction and acceptance with the use of e-Learning to assist teaching and learning of school administrators. Furthermore, the satisfaction of the acceptance from users was high level as measured by two main factors, namely usefulness and ease of use (Davis, 1989). The results are shown in Table 3.

Table 3. Results of satisfaction and acceptance with the use of e-Learning to assist teaching and learning

| Assessor | Mean | S.D. | Result |
|---|---|---|---|
| Usefulness | 4.31 | 0.56 | high |
| Ease of Use | 4.29 | 0.48 | high |
| Result | 4.30 | 0.52 | high |

## 5. Conclusions

According to the literature review, the results of this study confirm what was found in the study that e-Learning programs could improve students' learning ability. Furthermore the level of satisfaction indicated by those who used the programs was high and the programs could really assist teaching and learning. However, the distinctive aspect of this study is that the media used in this study was in English, and as a result, teachers and students can practice their English skills.

In conclusion, the e-Learning programs used to assist the teaching and learning of science, mathematics and English can improve the students' learning ability and the users agree that the programs can really assist the teaching and learning of those subjects.

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